FLY TO THE FORECAST
Improving the Accuracy of Digital Elevation Model (DEM)
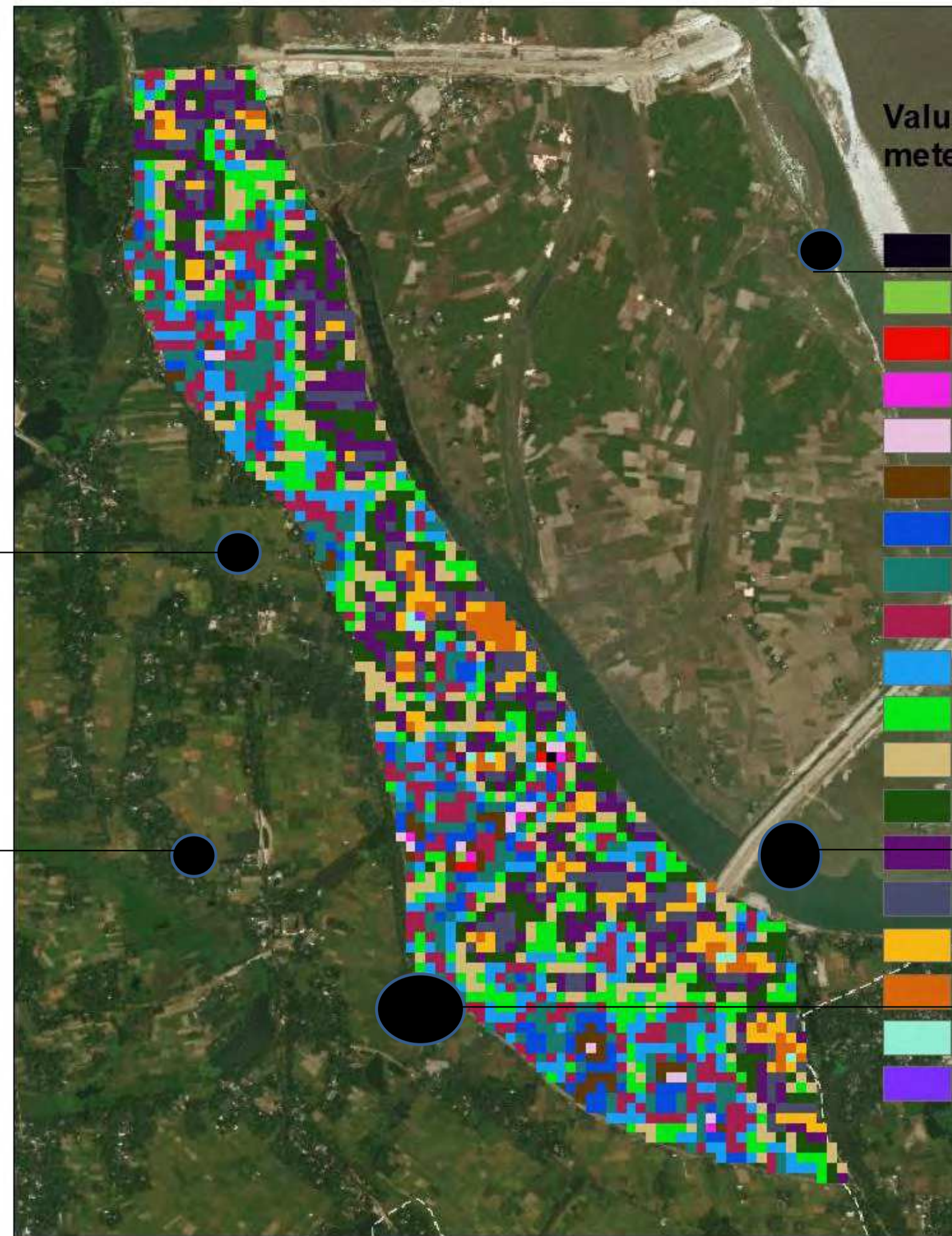
M. Rasheduzzaman (Rafi), Zahrun Zannat Surovi, Meng Hsuan Tsai, Muhammed Yusuf Jamil (Evan)

No Fly Zone

PROBLEM STATEMENT

- No Proper Forecasting System
- Local Context

Satellite Images

Neither precise nor accurate

Without proper consideration of water control structures

The presence of obstacles

Manual insertion heights

Previous DEM of the study area

CONCEPT

Flow Model

Rainfall

Improved DEM

Water Level in Jamuna

Inundated Area in Different Scale

Stakeholder Participation

Avoiding the Flood Damage for the Community

Drone Enhanced Images

Image Classification

Intersection in ArcGIS Map

Feature Specific Damage
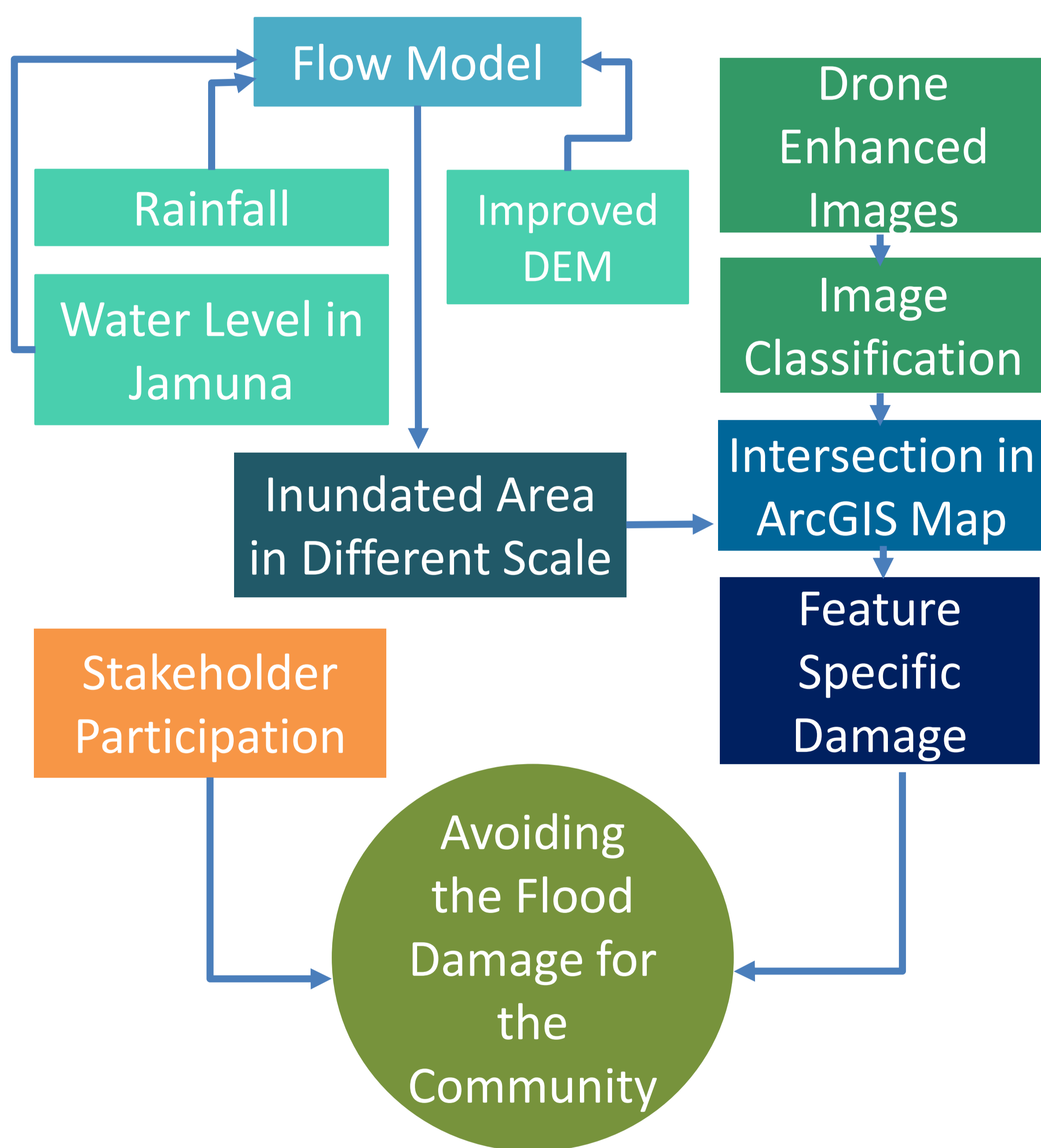
Improved Digital Elevation Model

Coordinate System: GCS WGS 1984
Datum: WGS 1984
Units: Degree

Legend
DEM
<VALUE>
- 60 - 70
- 70 - 80
- 80 - 90
- 90 - 100
- 100 - 110
- 110 - 120
- 120 - 130
- 130 - 140
- 140 - 150
- 150 - 160
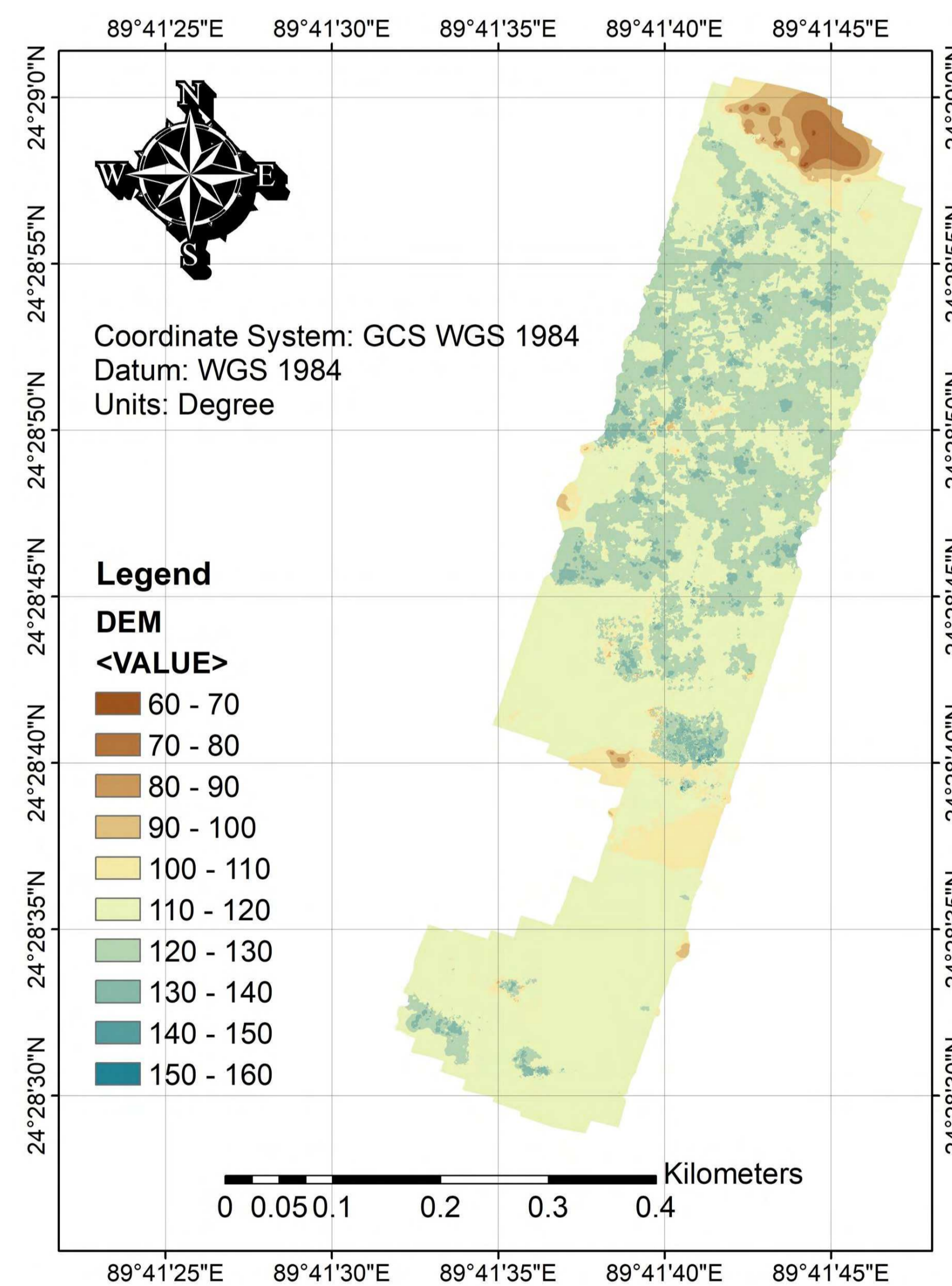
ACT TO IMPROVE

DEM GENERATION BY PHOTOGRAMMETRY

Replacing Satellite Images by

Drone Enhanced Image

Comparing two dimension of DEM

25m*25m   0.2m*0.2m

Including water control structures more precisely

Height/ Width of crossbar   Embankment

Removing obstacles from the DEM

Using CloudCompare

LOSS FOR 100 M² AREA

Structure	Loss /Structure/ month(BDT)	Number	Total (BDT)
Small Shops	26000	10	260,000
Big Shops	50000	5	250,000
Lowland Houses	12000	100	120,0000
Total		115	1,710,000

BENEFITS

- Early Evacuation
- Relocation of Machine
- Moving goods of shopkeepers
- Agriculture Planning

EFFECTIVENESS

- Long-term Seasonal Flood Outlook

LIMITATIONS

- Lack of Shelters
- Lack of Income Source During Floods